X-direction in relation to the Table 1 or form part of a stand or frame that is fixed in relation to the table.

In the case of the illustrated embodiment, the element **15** includes three rollers **16** which are carried for rotation on three horizontal axles **17** and which are disposed in an elongated slot **19** provided in a further element **18** and functioning to guide movement of the further element **18** in relation to the first-mentioned element **15**.

The further element [19] 18 is provided at one end with a bearing block **19***a* which coacts with a corresponding bearing block **7***a* on a corresponding end of the arm **7**. The arm **7** of this embodiment is thus journalled more stably about the axle **12** than in the aforedescribed embodiments.

The other end of the arm **7** includes a bearing block **7***b* which coacts with a bearing element [8] 8a corresponding to the bearing element **7***a* on the arm **7**, this arrangement corresponding functionally to the link element **8** of the aforedescribed embodiments. The journal axle of this embodiment is referenced **11**, as in the former cases.

For the purpose of supporting the receptor unit **2**, the arm **9** is firmly secured with the aid of an intermediate element [6] 26 which is embraced by a U-shaped block 20 which is connected to the intermediate element **26** in a manner to allow the block **20** to pivot about the horizontal axle **10**. As will be seen from FIGS. **14–16**, the receptor unit carried by the carrier and guide arrangement **15–19** can be displaced in the Y-direction relative to the element **15** to the position shown in FIG. **15** in which the receptor unit **2** lies outside the confines of the Table **1**. The receptor unit can then be swung up to the vertical position shown in FIG. **16** about the axle **10**.

In FIG. **17**, the receptor unit **2** is shown to be swung down to a vertical position which defines an angle of 180° with the position shown in FIG. **16**. X-rays can be taken of the knees of a standing or sitting patient with the receptor unit in this position.

The receptor unit **2** is swung down around the axle **21**, which is parallel with the axle **10** but located on a lower level than said axle.

The intermediate element **26** supports the receptor unit **2** through the medium of a plate **24**. As will be seen from FIG. **16**, the plate **24** is pivotal about a vertical axle **25**. The receptor unit **2** accompanies the movement of plate **24** as it swings around the vertical axle **25**, therewith enabling the receptor unit to be moved to the position shown in FIG. **19**, for instance. In this position, the receptor unit is able to take pictures with an angled beam path.

FIG. **18** shows the elements **15–19** in an operative position, after having moved the receptor unit **2** in the Y-direction to the other side of the table **1** relative to the position shown in FIG. **17**, and after having swung the receptor unit **2** first to a horizontal position about the axle **21**, and thereafter to an upwardly swung, vertical position about the axle **10**.

When the receptor-unit support element **15** forms part of a carriage which can be moved in the X-direction, the receptor unit can be moved in the X-direction from the position shown in FIG. **18**. The beam source will normally accompany this movement of the receptor unit automatically. Movement of the unit in the X-direction and in the Y-direction can be achieved with the aid of appropriate motors (not shown).

As indicated in FIGS. **14–19**, the receptor unit **2** may include a unit **28** which carries a joy-stick **27** and which functions to facilitate movement of the receptor unit in different directions. Obviously, the unit **28** may be placed in some other position, for instance on one or both sides of the table or on a table-carried carriage (not shown).

FIG. **20** is a perspective view illustrating principly the different positions to which a receptor unit **2** can be moved in relation to a patient support table **1** when using the carrier and bearing mechanisms illustrated in FIGS. **12–19**. Some of the positions shown by way of example in FIG. **20** correspond to the positions referenced A, C, F in FIGS. **1** and **2**. However, FIG. **20** shows a number of further positions which have been made possible because the receptor unit can be moved in the X-direction and also possibly in the Y-direction, and because the receptor unit can also be swung down from a horizontal position and adjusted about a vertical axle for operating with an angle beam path.

Other modifications of the invention are possible within the scope of its basic concept as expressed in the following Claims. For instance, the receptor unit may be accommodated in a frame which carries a table top, for instance a "floating" table top, i.e. a table top that is movable in the X-direction and/or the Y-direction.

The trend towards the development of filmless systems in which images are produced and stored electronically is particularly well served by the inventive method and the inventive patient support table. Because of the complexity of such electronic systems and because of the cost of such systems in which the receptor is connected directly to an evaluating unit, it is of extreme importance that the receptor can be used universally, therewith avoiding loose film cassettes, for instance.

I claim:

[1. A method relating to radiation sensing using a beam source which can be adjusted for at least one of horizontal, vertical and angled beam paths and a receptor unit (2) which can be swung out and up from a position beneath a top surface of a table to a vertical position on one side of and parallel with the table comprising the steps of:

(1) swinging the receptor unit (2) to at least one of two alternative positions outside each table side edge; and

(2) swinging the receptor unit (2) upwards to a vertical position about a horizontal axle (**10**);

wherein said receptor unit being swung through the medium of pivot centres (**11**, **12**), has vertical axles in the region of each side edge of the table (**1**).]

[2. A method according to claim **1**, further comprising the step of:

positioning respective pivot centres (**11**, **12**) in an X-direction, which is parallel to a longitudinal direction of the table, and in a Y-direction, which is parallel to a transverse direction of the table,

wherein centering of the beam source in the X-direction will be the same with both horizontal and vertical beam paths.]

[3. A method according to claim **1**, further comprising the step of:

swinging the receptor unit (2) outwardly to at least one of said alternative outwardly and upwardly swung positions to a position in which said unit is perpendicular to the X-direction.]

[4. A method according to claim **1**, further comprising the step of:

(1) moving the receptor unit in a X-direction with corresponding, automatic movement of the beam source; and

(2) adjusting said source for horizontal beam path onto the receptor unit subsequent to having swung said unit outward and upward outside a side edge of the table.]

[5. A method according to claim **1**, further comprising the step of:

supporting the receptor unit (2) with the aid of a support element (**15**) mounted on at least one of a frame

structure which is fixed relative to the table, and on a carriage which is movable in a X-direction in relation to said table,

wherein the receptor unit can be moved in the Y-direction relative to the element (15).]

[6. A method according to claim 5, further comprising the step of:

at least one of raising and lowering the receptor unit from an outwardly swung, horizontal position on one side of the table (1) to a vertical position at least one of above and beneath the table, by pivoting said receptor unit about mutually parallel axles (10; 21) located on mutually different levels.]

[7. A method according to claim 1, further comprising the step of:

pivoting the receptor unit (2) in an outwardly swung and upwardly swung vertical position about a central, vertical axle (22) for operating with an angled beam path.]

[8. A patient support table equipped with a receptor unit and intended for radiation sensing, wherein the receptor unit (2):

is supported for movement in a X-direction, which is parallel to the longitudinal direction of the table;

is adapted for coaction with a beam source which is movable in the X-direction, a Y-direction, which is parallel to the transverse direction of the table and in a Z-direction;

is capable of being swung about a horizontal axle; and

is capable of being swung out and up about a vertical and a horizontal axle from a position beneath a top surface of the table to a position on one side of and parallel with the table; and

is carried by arms (7, 9) which are joined together, by a link (8), through the medium of pivot centres (11, 12) having vertical axles in the region of each side edge of the table (1), to enable the receptor unit (2) to be swung out to alterative positions on each side of the table (1) and swung up to a position in which the receptor unit is parallel with the table for operating with a horizontal beam path, this latter movement of the receptor unit being possible by virtue of a horizontal hinge (10) which connects said unit to one (9) of said arms.]

[9. A table according to claim 8, wherein the receptor unit (2) can be swung from the position for operation with a horizontal beam path to a position perpendicular to the table, through the medium of a vertical axle.]

[10. A table according to claim 9, wherein the vertical axle constitutes one (11) of said pivot centres (11, 12).]

[11. A table according to claim 8, wherein the lengths of the arms (7, 9) and the link (8) allow the receptor unit (2) to take a position for operation with a centered beam path without being moved in the X-direction from its original position (position A) beneath a top surface of the table (1), irrespective of from which side the receptor unit is swung outwards and upwards.]

[12. A table according to claim 8, wherein the receptor unit (1) and its associated arms (7, 9), link (8) and pivot centres (11, 12) are supported by a carriage mounted on the underside of the table (1) and movable in the X-direction.]

[13. A table according to claim 8, wherein the table top is movable in at least one of the X-direction and the Y-direction, and the receptor unit (1) is mounted in a frame carried by said table top.]

[14. A table according to claim 12, wherein the carriage includes an element (15) having means (16–19) for guiding movement of a further element (18) journalled to one (7) of the arms (7, 9), wherein the other (9) of said arms carries a block (20) in which a plate (24) carrying the receptor unit (20) is journalled for pivotal movement about a horizontal axle (10).]

[15. A table according to claim 14, wherein the block (20) has a further axle (21) which is parallel with said horizontal axle (10) and on which the plate supporting said receiver receptor unit is pivotally mounted.]

[16. A table according to claim 15, wherein the receptor unit (2) is connected to the plate (24) by means of an axle (25) which extends perpendicularly to the plate and about which the receptor unit can be swung for operation with an angled beam path.]

[17. A table according to claim 8, wherein at least one of the table and the receptor unit includes an operating device, for manoeuvering the linear movement and pivotal movement of the receptor unit (2) in relation to the patient support table.]

[18. A table according to claim 12, wherein the carriage includes an operating device, for manoeuvering the linear movement and pivotal movement of the receptor unit (2) in relation to the patient support table.]

[19. A table according to claim 13, wherein the frame includes an operating device, for manoeuvering the linear movement and pivotal movement of the receptor unit (2) in relation to the patient support table.]

* * * * *

20. An X-ray diagnostic apparatus comprising:
an X-ray generating portion configured to irradiate an X-ray to a subject;
a solid state detecting portion formed by plural solid state detecting elements and configured to detect the X-ray irradiated from the X-ray generating portion and movably provided independently of the X-ray generating portion; and
a holding mechanism configured to hold the solid state detecting portion such that the solid state detecting portion is horizontally movable, pivotable on a vertical axis, pivotable on a horizontal axis which crosses the vertical axis and rotatable about an axis which crosses the horizontal axis and is parallel to a detecting plane of the solid state detecting portion,
wherein the X-ray generating portion comprises at least one of an X-ray generating portion for an under-table tube capable of imaging in a style of under-table tube and an X-ray generating portion for an over-table tube capable of imaging in a style of over-table tube.

21. An X-ray diagnostic apparatus comprising:
an X-ray generating portion configured to irradiate an X-ray to a subject;
a radiation receptor for electronic image storage and configured to detect the X-ray irradiated from the X-ray generating portion and movably provided independently of the X-ray generating portion; and
a holding mechanism configured to hold the radiation receptor for electronic image storage such that the radiation receptor for electronic image storage is horizontally movable, pivotable on a vertical axis, pivotable on a horizontal axis which crosses the vertical axis and rotatable about an axis which crosses the horizontal axis and is parallel to a detecting plane of the radiation receptor for electronic image storage,
wherein the X-ray generating portion comprises at least one of an X-ray generating portion for an under-table tube capable of imaging in a style of under-table tube and an X-ray generating portion for an over-table tube capable of imaging in a style of over-table tube.

22. An X-ray system comprising:
a patient table and an X-ray beam source movable in an x-direction, a y-direction, and a z-direction, and rotatable about a horizontal axis relative to the patient table;
a radiation receptor for electronic image storage comprising a filmless system in which X-ray images are produced and stored electronically, said radiation receptor having a detecting plane and being configured to detect X-rays from said X-ray beam source and movably provided independently of the X-ray beam source; and
a holding mechanism configured to hold the radiation receptor such that the radiation receptor is horizontally movable, pivotable on a vertical axis, pivotable on a horizontal axis which crosses the vertical axis and rotatable about an axis which

crosses the horizontal axis and is parallel to the detecting plane of the radiation receptor.

wherein the X-ray beam source comprises an X-ray beam source for selectively imaging a patient from above the table when the patient is lying down on the table and from below the table when the radiation receptor is below the table.

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